

**MINUTES
of the
SIXTH MEETING
of the
SCIENCE, TECHNOLOGY AND TELECOMMUNICATIONS COMMITTEE**

**November 3-4, 2015
Room 311, State Capitol
Santa Fe**

The sixth meeting of the Science, Technology and Telecommunications Committee (STTC) was called to order by Representative James E. Smith, chair, on Tuesday, November 3, 2015, at 10:04 a.m. in Room 311 of the State Capitol in Santa Fe.

Present

Rep. James E. Smith, Chair (11/3)
Sen. Michael Padilla, Vice Chair
Sen. William F. Burt
Rep. Stephanie Garcia Richard (11/4)
Rep. Bill McCamley
Sen. Bill B. O'Neill (11/3)
Rep. Debbie A. Rodella
Rep. Carl Trujillo
Rep. John L. Zimmerman

Absent

Rep. Jason C. Harper
Sen. Daniel A. Ivey-Soto
Rep. Conrad James
Sen. John C. Ryan

Advisory Members

Sen. Jacob R. Candelaria (11/3)
Sen. Carlos R. Cisneros (11/3)
Rep. Kelly K. Fajardo
Sen. Richard C. Martinez
Sen. Nancy Rodriguez (11/4)
Rep. Nick L. Salazar
Rep. Luciano "Lucky" Varela

Sen. Ron Griggs
Rep. Antonio Maestas
Sen. Steven P. Neville
Sen. Mary Kay Papen
Sen. William H. Payne
Sen. Peter Wirth
Rep. Monica Youngblood

(Attendances dates are noted for members who were not present for both meeting days.)

Staff

Gordon Meeks, Legislative Council Service (LCS)
Ralph Vincent, LCS
Alexandria Tapia, LCS

Minutes Approval

Because the committee will not meet again this year, the minutes for this meeting have not been officially approved by the committee.

Guests

The guest list is in the meeting file.

Handouts

Handouts and other written testimony are in the meeting file and are located on the New Mexico Legislature website.

Tuesday, November 3

The chair welcomed the committee to the final meeting of the STTC for the 2015 interim. Members of the committee and staff were invited to introduce themselves.

Spaceport America Status Update

Christine Anderson, executive director, Spaceport America, provided a presentation to the committee that included a current status update, capital outlay requests and a budget overview. Spaceport America is one of 10 Federal Aviation Administration-licensed spaceports in the country. To date, it has held 23 vertical launches, with the next one scheduled in November 2015. In addition to its three tenants — Virgin Galactic, SpaceX and X2nSat — it also has 28 New Mexico companies that operate at the site. Spaceport America is working on increasing its marketing campaign to attract more companies and visitors to the facility. There is also large potential for venue events, sponsorships, photo and film shoots and virtual education. Spaceport America is seeking to build another hangar and expand its user capacity. Ms. Anderson shared a video with the committee featuring the visitor center that opened in June 2015.

Spaceport America is active in science, technology, engineering and mathematics (STEM) education and is working to grow its programs around the state to expand interest in STEM-related fields. Ms. Anderson provided an overview of Spaceport America's educational outreach. The facility has partnered with the Challenger Learning Center in Las Cruces as part of a three-week educational experience. It has been conducting real-time, online virtual classes and spaceport tours with public schools in Sierra and Dona Ana counties. The goal is to reach every sixth grade student in those counties during the year; eventually it hopes to expand to other counties.

Ms. Anderson explained that the spaceport has two types of budgets: (1) a capital budget; and (2) an operational budget. The capital budget is made up of \$142.1 million in severance tax capital funds and \$76.4 million in gross receipts tax capital funds from Sierra and Dona Ana counties. For fiscal year (FY) 2017, Spaceport America is looking to increase its operational budget to \$6,898,900. Of that, \$2,812,800 will be requested from the state's general fund.

Spaceport America is also looking to acquire a liquor license. This is seen as a way to attract more events and also add revenue for the facility. Ms. Anderson updated the committee

on the status of the "southern road". This road is viewed as critical to the success of the facility. It is scheduled for completion in August 2017.

In concluding her presentation, Ms. Anderson invited members of the committee to come out to the facility to see all of its additions and to see what educational opportunities there are for students. The committee discussed the following points with Ms. Anderson:

- how to expand the virtual school program to get more students to the facility;
- the Virgin Galactic crash and its economic impact on the site and the effect on the community;
- an explanation of vertical launches and payloads;
- an explanation of the budget increase from FY 2015 to FY 2016;
- the number of employees at the site and the difficulty of offering competitive salaries;
- the capability to support communications through existing fiber;
- progress on a potential hotel; Virgin Galactic has entered into agreements with two hotels — one in Truth or Consequences and one in Las Cruces;
- the benefit of a liquor license for the facility;
- the need to expand usage beyond aerospace;
- rumored proposals to sell the spaceport;
- the increasing number of spaceports and competition;
- what makes Spaceport America different from other spaceports; and
- the importance of completing the "southern road" and the causes of the delays.

National Laboratories Status Update

Richard Marquez, executive director, Los Alamos National Laboratory (LANL), presented the STTC with an overview of operations at the laboratory. LANL operates on a \$2.3 billion budget, 98% of which is funded by the federal government. Work at LANL is organized under five principal associate directorates: (1) global security; (2) weapons programs; (3) science, technology and engineering; (4) operations and business; and (5) capital projects.

The weapons program is the prime driver of operations at LANL, and it is essential to ensuring the U.S. nuclear deterrent. LANL has placed a large mission focus on science, with long-term investments in its four pillars of science: (1) materials for the future; (2) the science of signatures; (3) integrating information, science and technology for prediction; and (4) nuclear and particle futures. LANL's isotope program is the largest domestic supplier of isotopes for cardiac imaging and cancer imaging studies. The program is currently investigating isotopes for cancer therapy.

Mr. Marquez provided the committee with a breakdown of LANL's annual budget and workforce. Mr. Marquez stressed the importance of maintaining a pipeline between LANL and the universities. The STTC was given several examples of how LANL is working to increase its efforts in recruitment and retention of New Mexico professionals, while promoting ethnic and gender diversity. Mr. Marquez also discussed LANL's involvement in the community through

scholarships and its partnership with the United Way. Employees contributed \$2.2 million to nonprofit organizations and \$256,000 to a scholarship fund that was matched by LANL.

Following the presentation from Mr. Marquez, the committee had the following inquiries:

- the impact of the environmental management takeover;
- issues and efforts with recruitment and retention;
- implementation of different levels of security at LANL;
- Tennessee's model for a university consortium;
- modernizing intellectual property (IP) strategy;
- supply management chains and concern with reduction of contracts within the state;
- ongoing medical research, including the Athena project, which is a way to simulate how healing/treatment affects the organs in the body;
- the need to emphasize relationships with third parties and the private sector;
- LANL's shift to using third-party entities to determine the needs of the community and disburse funding accordingly (new use of the United Way);
- cybersecurity threats and issues; and
- incentives for attracting the next generation of scientists to New Mexico.

James Chavez, vice president, International, Homeland and Nuclear Security Program Management Unit, Sandia National Laboratories (SNL), provided some personal background, noting that he is part of the second generation working at SNL. SNL is managed by Lockheed Martin for the federal government and consists of numerous sites, the largest of which is located in Albuquerque. Mr. Chavez explained the organization of executive management, adding that Jill Hruby is SNL's first female director. SNL has a large national security mission outside of nuclear weapons, with focuses on cyberspace; reducing global chemical and biological dangers; and global nuclear assurance and security. Under congressional order, SNL is no longer building any new weapons but is in the process of updating and extending the life of existing weapons. In FY 2015, SNL's operating funding was \$2.81 billion. Mr. Chavez discussed the breakdown of the workforce at SNL by discipline and ethnicity. He commented that approximately half of the workforce at SNL has a degree from a New Mexico university.

Like LANL, SNL's economic impact on the nation and New Mexico is significant. In FY 2015, the total of New Mexico contract-related payments was \$381,884,000, and \$258,970,000 was paid to small businesses in the state. In 2014 alone, the New Mexico Small Business Assistance Program at SNL has provided assistance to 352 small businesses in 31 counties. Sandia is also looking to expand its support for STEM by engaging students in various activities and hosting many events. Mr. Chavez expressed SNL's commitment to community service by volunteers donating over 90,000 hours per year and SNL's donation of \$6.5 million to nonprofits through the United Way 2014 campaign.

Philip D. Heermann, senior manager, High Consequence Automation and Robotics, SNL, discussed unmanned aerial systems (UAS). SNL has an interest in UAS and is involved in many

programs relating to their testing and development. Mr. Heermann explained the rapidly developing technology of drones and the challenges their increasing popularity is posing for security and governments. UAS are the fastest growth sector within the U.S. aviation industry, with an estimated one million sold in the U.S. in 2015 alone. Mr. Heermann shared with the committee various models of UAS, as well as a few videos illustrating their capabilities. As of September 2015, 28 states have passed laws or policies regarding UAS. In considering potential legislation, Mr. Heermann cautioned the importance of not limiting national security and public service use.

Following the presentation from SNL, the committee had several comments and questions, including:

- efforts by SNL to move IP forward;
- changes in the supply chain and a national shift toward large-scale contracts;
- the process of re-engineering nuclear weapons and replacing aging technology;
- a request for additional information on employee makeup;
- the unintended consequences of legislation in other states regarding UAS usage;
- struggles regarding keeping up to date with rapidly evolving technology;
- current usage of UAS in New Mexico;
- the definition of hobbyist use; and
- what types of legislation could be beneficial in the state.

Connect America Fund; Round II Status

Adriana Badal, lobbyist, Sacred Wind Communications, testified before the committee regarding the Federal Communications Commission's (FCC's) Connect American Fund (CAF). Sacred Wind is a New Mexico telecommunications company established in 2006. It provides voice and broadband services in portions of the Navajo Nation in northwestern New Mexico; the Four Corners area; and Cañoncito, west of Albuquerque. Ms. Badal provided the committee with some background on the CAF program, which was started in 2011 and is now in phase two of the program (CAF II). The FCC announced several months ago that 10 telecommunications carriers will receive approximately \$9 billion in CAF II support over the next six years for rural broadband deployment to nearly 7.3 million rural consumers in 45 states and one U.S. territory. Companies eligible to receive funding are the larger national providers, also known as price-cap carriers. In New Mexico, CenturyLink, Frontier and Windstream are eligible for funding. Windstream declined \$3.8 million annually for six years for 8,720 eligible locations in New Mexico. CenturyLink accepted almost \$11 million annually for six years for 25,308 eligible locations. Frontier accepted \$4.4 million annually for six years for 7,032 locations. Next year, the FCC intends to make the funding that was declined available for other companies in a competitive bidding process. Sacred Wind intends to apply for those funds.

Ms. Badal explained the steps being made by Sacred Wind in preparation for the bidding process. Sacred Wind has purchased a Google Earth program that allows it to use CAF II map legends to identify specific details about the eligible census blocks for which funds are accepted

or declined. The FCC maps do not provide the addresses of eligible homes, businesses or critical community facilities. Ms. Badal explained several maps included in a handout to the STTC and offered some suggestions on how the legislature could help in the expansion. Sales or property tax incentives could potentially help expand broadband into rural parts of the state. In addition, the state could expedite the permitting process for right-of-way applications, reducing delays and cost to the provider. Allowing access to government buildings and federal land could also help providers that are trying to get to some locations.

Members of the STTC commended the eligible providers for accepting the money and Sacred Wind for pursuing the funding. In response to questions from the committee, the following topics were addressed:

- the status of the State Rural Universal Service Fund;
- other modes of delivering service in addition to laying fiber;
- Windstream's refusal of CAF funding;
- how the bidding for the remainder of CAF funding will be conducted;
- the difficulty in understanding why only some homes are eligible for CAF funding;
- costs to the carriers to provide the "last mile" of fiber;
- benchmarks for installation and the qualifying factor for selecting homes;
- the need for long-term planning to install broadband conduits when building roads and other infrastructure; and
- the increased need for public/private partnerships.

Recess

The meeting recessed at 4:32 p.m.

Wednesday, November 4

Broadband Redundancy and Reliability

Moira Gerety, deputy chief information officer, University of New Mexico, presented to the committee how redundancy is seen as an effective tool in information technology (IT). Ms. Gerety provided several key terms frequently used to evaluate network reliability. Three case studies were presented to illustrate how network redundancy can increase reliability and reduce costs: the Albuquerque GigaPoP and collaborative efforts in Gallup and Espanola. Ms. Gerety described how these networks are set up. These types of networks are beneficial in areas that have high utilization and are used for "real-time" activities like medical or public safety or to move around large amounts of data.

The biggest threats to network reliability are physical damage; cyberattacks or other software "damage"; and scarcity, which increases risk through single points of failure. Ms. Gerety explained several design countermeasures for affordability: volume purchasing; encouraging competition; owning rather than renting some assets; caching; aggregation; and "peering" by creating interoperating networks. In conclusion, Ms. Gerety reiterated that

redundancy is an important tool in network design as a countermeasure to the risk of network failure. Case studies have illustrated the value of investments in what might be considered extras, but which turn out to be necessary. Public network managers are working together to implement better reliability for constituents through sound network design principles, which sometimes require investment in "redundant" network capacity.

The STTC questioned Ms. Gerety about the following aspects of the presentation:

- the need for a cost-benefit analysis in determining whether to create initial networks or add fiber to create redundancy in certain areas;
- the benefits of having more carriers in areas to increase reliability and reduce rates;
- the importance of redundancy for institutions like universities and for public safety; and
- renting versus buying equipment and infrastructure.

Motion 1

The committee discussed the ongoing conflict regarding Jemez Mountain Electric Cooperative, Inc. (JMEC). A motion was made by Representative Rodella, seconded by Representative Trujillo, to send a letter to REDINet and JMEC regarding the concern of the STTC on this issue and requesting clarification on the matter. A subcommittee was appointed to include Representatives Trujillo, Rodella and Garcia Richard, who will work with staff on drafting the letter. The motion passed without objection.

Motion 2

Upon a motion by Representative Garcia Richard, seconded by Representative Zimmerman, the committee voted to approve the minutes from the October meeting of the STTC.

Broadband Deficiencies Program

Robert Gorrell, director, Public School Facilities Authority, appeared before the committee to discuss the Broadband Deficiencies Correction Program. Mr. Gorrell explained the background and purpose behind Senate Bill 159 (2014) — "Education Technology Infrastructure Funding". An explanation of encumbrances and expenditures of funding was provided. Mr. Gorrell explained that these funds will be used as the required E-Rate funding match on fiber installation projects for school facilities currently without a fiber connection. This infrastructure will support any future state broadband distribution model/solution. The funds will also be used to provide the required state/local funding to cover the nondiscounted portion of Category 2 E-Rate internal equipment purchases and leverage the FY 2016 E-Rate funding up to 80%. This matches the existing Public School Capital Outlay Council allocation process.

Mr. Gorrell outlined the E-Rate time line through July 2016. He stressed the importance of budgeting now, illustrating commitment to schools and school districts, vendors and the FCC.

Mr. Gorrell provided the proposed prioritization criteria to the committee. An emphasis is being placed on getting signals into the schools and working on wireless capabilities at a later date.

On questioning, Mr. Gorrell and committee members discussed the following topics:

- reducing the cost of equipment through bulk purchasing;
- attempts at equally applying technology to all parts of the state;
- recycling of technology and equipment when feasible;
- areas still in need of fiber and those needing wireless upgrades (92% of schools);
- collaboration among multiple departments and agencies; and
- clarification on prioritization.

Information Technology Commission Status Review

Darryl Ackley, secretary, Department of Information Technology (DoIT), followed up with the STTC regarding his presentation earlier in the interim. Secretary Ackley was asked by the committee to provide a proposal about what could be done to make the Information Technology Commission (ITC) more useful in its functions. Secretary Ackley presented the committee with a proposal that would replace the ITC with an IT advisory board (ITAB). The ITAB would consist of eight members who would provide guidance on the three-year IT strategic plan, identify cross agency collaboration and future needs and propose future rulemaking.

Following Secretary Ackley's proposal, members of the committee engaged in a lengthy discussion regarding acceptance of the proposal. Representative Varela made a motion for the proposal not to be accepted and provided background on the creation of the ITC. Members of the committee brought up issues that caused the ITC to become defunct, and there was discussion of the merits of the existing commission. Secretary Ackley explained that the proposal only seeks to address some of the issues raised during the Farmington meeting of the STTC and was intentionally ambiguous. After input from the other members of the STTC, Representative Varela withdrew his motion on the condition that this issue continue to receive attention and potentially be brought back for discussion prior to the next 60-day session. The STTC agreed to bring this item back during the first part of the next interim. In the meantime, it was recommended that the DoIT work with the executive branch to fill the vacancies on the ITC. Secretary Ackley was asked to provide staff with a current makeup of the commission and vacancies.

Child Protection Registry

This presentation was canceled due to scheduling conflicts.

Adjournment

There being no further business before the committee, the sixth meeting of the STTC adjourned at 12:00 noon.